

CALIFORNIA ENERGY COMMISSION

Thermal Energy Storage

Mission Valley Mall Project Summary

Project Description:

The Westfield Corporation, owners of the San Diego Mission Valley Mall, redesigned and replaced the existing equipment in the over 30 year old mall's central plant. The central plant provides chilled water to most of the stores within the mall. With a maximum load of 1190 tons, the original system used:

- Two 1220-ton centrifugal chillers,
- Two primary 75 horsepower chilled water pumps,
- Two secondary chilled water pumps,
- Two 75 horsepower condenser-water pumps, and
- Four cell cooling towers.

Since the retrofit, the system now uses:

- Two new 850-ton centrifugal chillers,
- Two new primary 30 horsepower chilled water pumps,
- Two secondary chilled water pumps,
- Two new 60 horsepower condenser-water pumps, and
- One 150 horsepower chilled water transfer pump that can now provide cooling water to the building and to a newly installed 5700 ton hour thermal energy storage tank.

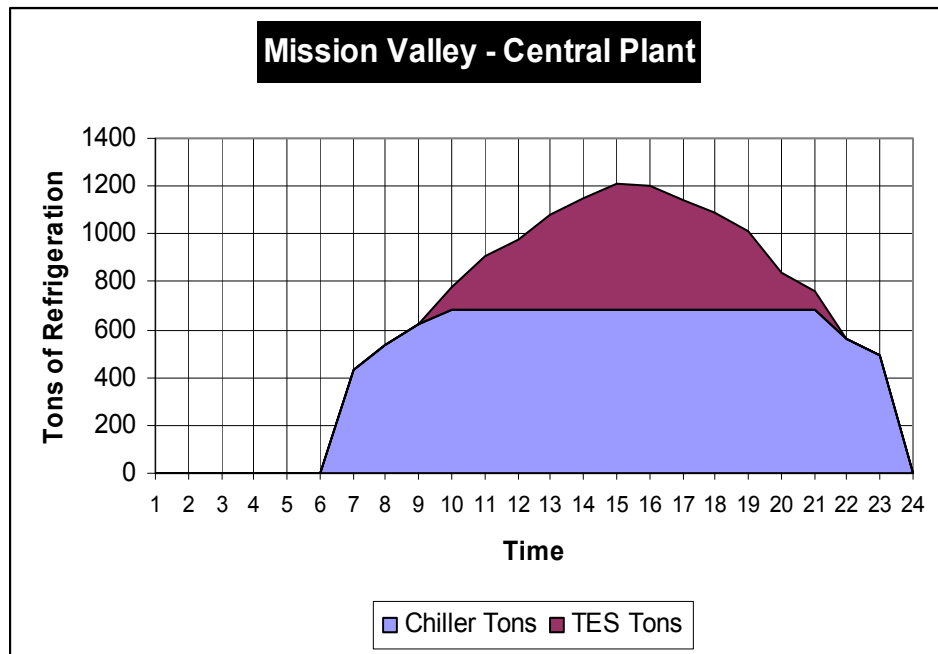


Project Results:

The central plant was running with a peak demand of 1,483 kilowatts. With the thermal energy storage system in operation, peak demand was reduced by approximately 60% to 596 kilowatts. The old chiller required 1095 kilowatts to provide the 1190-ton cooling load needed. Since the system retrofit, only 417 kilowatts are needed to provide for the same 1190 tons of cooling load. The new chiller and pumps provides 680 tons of cooling and the new thermal energy storage system provides the remaining 510 tons of cooling needed.

The total savings during summer peak is estimated at 887 kilowatts, with 417 kilowatt savings from the new energy efficient chillers and pumps, and 470 kilowatt savings from the thermal energy storage.

The kW demand after the thermal energy storage and equipment retrofits is:



Funding Details

The Energy Commission provided a \$94,000 award toward the total project cost of over \$1,000,000.

Contacts:

BOMA of Greater Los Angeles

Barbara Harris,
Executive Director
213.629.2662

Energy Innovation Group, LLC

Sidney Pelston,
Technology Advisor and Program Coordinator

213.413.8344

California Energy Commission

Bruce Cenicerros
916.653.1590